LIT-124/GCD 98-25 N00

Amendments

Please amend the above-identified application as follows:

In the Claims:

Please amend claims 1, 4, and 21-22 by substitution as follows:

1. An m × n sensor array, comprising:

m distribution fiber lines;

n return fiber lines; and

z sensor groups, each of said z sensor groups comprising:

y sensors; and

input couplers and output couplers, said input couplers and said output couplers being connected to respective ones of said sensors, wherein each of said input couplers within any of said z sensor groups is connected to a corresponding one of said m distribution fiber lines, wherein each of said output couplers within any of said z sensor groups is connected to a corresponding one of said n return fiber lines;

wherein coupling ratios of said input couplers and said output couplers in said z sensor groups are chosen to reduce differences in the returned optical signal power levels;

wherein said output couplers comprise a first output coupler and a second output coupler, wherein a first number of said output couplers are located between said first output coupler and a signal destination on one of said n return fiber lines, wherein the first number is greater than or equal to zero, wherein the coupling ratio of said first output coupler is based on the first number, wherein a second number of said output couplers are located between said second output coupler and the signal destination on the one of said n return fiber lines, wherein the coupling ratio of said second output coupler is based on the second number, wherein the second number is greater than the first number, wherein the coupling ratio of said second output coupler is larger than the coupling ratio of said first output coupler;

wherein m is 6 and n is 16.

4. A sensor array, comprising:

distribution fiber lines;

return fiber lines; and

sensor groups, each of said sensor groups comprising:

sensors; and

input couplers and output couplers, said input couplers and said output couplers being connected to respective ones of said sensors, wherein each of said input couplers within any of said sensor groups is connected to a corresponding one of said distribution fiber lines, wherein each of said output couplers within any of said sensor groups is connected to a corresponding one of said return fiber lines;

wherein coupling ratios of said input couplers and said output couplers are chosen to reduce differences in the returned optical signal power levels, said input couplers in a first sensor group having a first input coupling ratio and said input couplers in a second sensor group having a second input coupling ratio different from said first input coupling ratio;

wherein one or more signal sources, that comprise a first signal source, are coupled with respective ones of said distribution fiber lines, that comprise a first distribution fiber line;

wherein said input couplers comprise a first input coupler and a second input coupler, wherein a first number of said input couplers are located on the first distribution fiber line between the first signal source and said first input coupler, wherein the first number is greater than or equal to zero, wherein the coupling ratio of said first input coupler is based on the first number, wherein a second number of said input couplers are located between the first signal source and said second input coupler, wherein the coupling ratio of said second input coupler is based on the second number, wherein the second number is greater than the first number, wherein the coupling ratio of said second input coupler is larger than the coupling ratio of said first input coupler;

wherein each output coupler is connected to a respective return fiber line from a sensor group having a coupling ratio that differs from the coupling ratio of the other output couplers connected to the respective return fiber line, wherein said output couplers comprise a first output coupler and a second output coupler, wherein a first number of said output couplers are located between said first output coupler and a signal destination on one of said return fiber lines, wherein the first number is greater than or equal to zero, wherein the coupling ratio of said first output coupler is based on the first number, wherein a second number of said output couplers are located between said second output coupler and the signal destination on the one of said return fiber lines, wherein the coupling ratio of said second output coupler is based on the second number, wherein the second number is greater than the first number, wherein the coupling ratio of said second output coupler is larger than the coupling ratio of said first output coupler, said input coupling ratios and said output coupling ratios selected in accordance with respective locations of said input couplers on said distribution fiber lines and respective locations of said output couplers on said return fiber lines.

21. An m × n sensor array, comprising:

m distribution fiber lines;

n return fiber lines; and

z sensor groups, each of said z sensor groups comprising:

y sensors; and

input couplers and output couplers, said input couplers and said output couplers being connected to respective ones of said sensors, wherein each of said input couplers within any of said z sensor groups is connected to a corresponding one of said m distribution fiber lines, wherein each of said output couplers within any of said z sensor groups is connected to a corresponding one of said n return fiber lines;

wherein coupling ratios of said input couplers and said output couplers in said z sensor groups are chosen to reduce differences in the returned optical signal power levels, wherein said input couplers comprise a first input coupler and a second input coupler, wherein a first number of said input couplers are located between a signal source and said first input coupler on one of said m distribution lines, wherein the first number is greater than or equal to zero, wherein a second number of said input couplers are located between the signal source and said second input coupler on the distribution line, wherein the second number is greater than the first number, wherein the input coupling ratio of said second input coupler is higher than the input coupling ratio of said first input coupler;

wherein m is 6 and n is 16.

22. An m × n sensor array, comprising:

m distribution fiber lines;

n return fiber lines; and

z sensor groups, each of said z sensor groups comprising:

y sensors; and

input couplers and output couplers, said input couplers and said output couplers being connected to respective ones of said sensors, each of said input couplers within any one of said z sensor groups being connected to a different one of said m distribution fiber lines;

wherein the n return fiber lines comprise one or more sets of return fiber lines, wherein a first one of each of the one or more sets of return fiber lines is connected to a first subset of said output couplers within a respective one of said z sensor groups, wherein a second one of each of the one or more sets of return fiber lines is connected to a second subset of said output couplers within the respective one of said z sensor groups;

wherein coupling ratios of said input couplers and said output couplers in said z sensor groups are chosen to reduce differences in the returned optical signal power levels;

wherein said output couplers comprise a first output coupler and a second output coupler, wherein a first number of said output couplers are located between said first output coupler and a signal destination on one of said n return fiber lines, wherein the first number is greater than or equal to zero, wherein the coupling ratio of said first output coupler is based on the first number, wherein a second number of said output couplers are located between said second output coupler and the signal destination on the one of said n return fiber lines, wherein the coupling ratio of said second output coupler is based on the second number, wherein the second number is greater than the first number, wherein the coupling ratio of said second output coupler is larger than the coupling ratio of said first output coupler;

wherein m is 6 and n is 16.